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## SOME CASES OF ANEURYSM.

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[With Plates XXXII.—XXXV.]

It seems to me that we could not better utilise the present occasion than by taking the opportunity afforded by the fact that five cases of aneurysm are now in my wards in order to discuss some aspects of this interesting affection. The remarks about to be made will be largely devoted to the symptoms and diagnosis of the disease, but some matters concerned with prognosis and treatment will necessarily arise in connection with the subject. Without further preface the different patients will now be presented to you.

*Case 1.*—R. R., aged 40, blacksmith, who had served with the Imperial Yeomanry in South Africa as a farrier, was recommended by Dr. Watson, of Wemyss, to Ward XXIX., February 1, 1904, on account of breathlessness and cough which had troubled him for six months.

It is found that the patient is only comfortable when sitting upright. He has a harsh brassy cough, and a loud stridor, while the voice is hoarse and monotonous. There is no difficulty in swallowing. On examination of the thorax there is some pulsation on both sides of the manubrium, but no projection of any part of the chest is present. No thrill can be detected. On percussion, the right and left borders of the heart are found to be respectively  $2\frac{1}{2}$  and  $4\frac{1}{2}$  inches from mid-sternum; there is an area of dulness above the præcordia, extending as high as the first rib, and stretching  $2\frac{1}{2}$  inches to right and  $1\frac{3}{4}$  inches to left of the midsternal line. On auscultation, no murmur has at any time been detected, but the aortic second

<sup>1</sup> A Clinical Lecture in the Royal Infirmary.

sound is loudly accentuated. The screen reveals a dark mass which has distinct pulsation, and the skiagram (Fig. 1) shows an area of shadow, both above the heart; these correspond very exactly with the patch of dulness found on percussion. The pulsation in the two radials is synchronous and equal. Examination of the lungs gives a distinct stridor over both sides of the chest. There is some tracheal tugging. The left vocal cord is found to be almost motionless, but it has not quite assumed the cadaveric position; when the larynx is employed, however, in vocalisation, the right cord crosses the middle line. The pupils are similar in size, and respond to all stimuli with equal promptness.

In this case, although several of the symptoms we are accustomed to look for are absent, we cannot doubt that there is an aneurysm of the transverse portion of the arch of the aorta.<sup>1</sup> As rest, diet, and iodides have only produced very slight alleviation of the symptoms, the patient has been treated by subcutaneous injections of gelatin in simple serum, but even these, which the experience of my wards has taught me to rely on with considerable faith, have not been very useful. Surgical measures have been debated, and consultations have been held with one of my surgical colleagues; on account of the position of the aneurysm, however, we have taken no active steps.

*Case 2.*—J. H., aged 52, miner, was sent on September 17, 1904, to Ward XXIX., by Dr. Watson, of Wemyss, complaining of pain in the upper part of the right side of the chest, and inability to lie on the left side.

The patient has marked pulsation in the second and third right intercostal spaces, close to the sternum, and also in the episternal notch; it is unaccompanied by any thrill. The cardiac boundaries are  $1\frac{1}{4}$  inches to the right, and  $4\frac{1}{4}$  inches to left, of mid-sternum. Corresponding to the area of pulsation in the upper intercostal spaces there is dulness extending outwards 2 inches to the right and  $1\frac{1}{2}$  inches to the left of the middle line. Save for accentuation of the second sound in the aortic area there is no change on auscultation, and both radial pulses are equal and synchronous.

<sup>1</sup> Since the delivery of the lecture the patient died from an infective or septic broncho-pneumonia, and an aneurysm was found in the situation indicated. The cardiac valves were in a state of absolute integrity.

PLATE XXXII.



Fig. 1. *Skiagram from Case 1.*



Fig. 2. *Skiagram from Case 2.*

PLATE XXXIII.

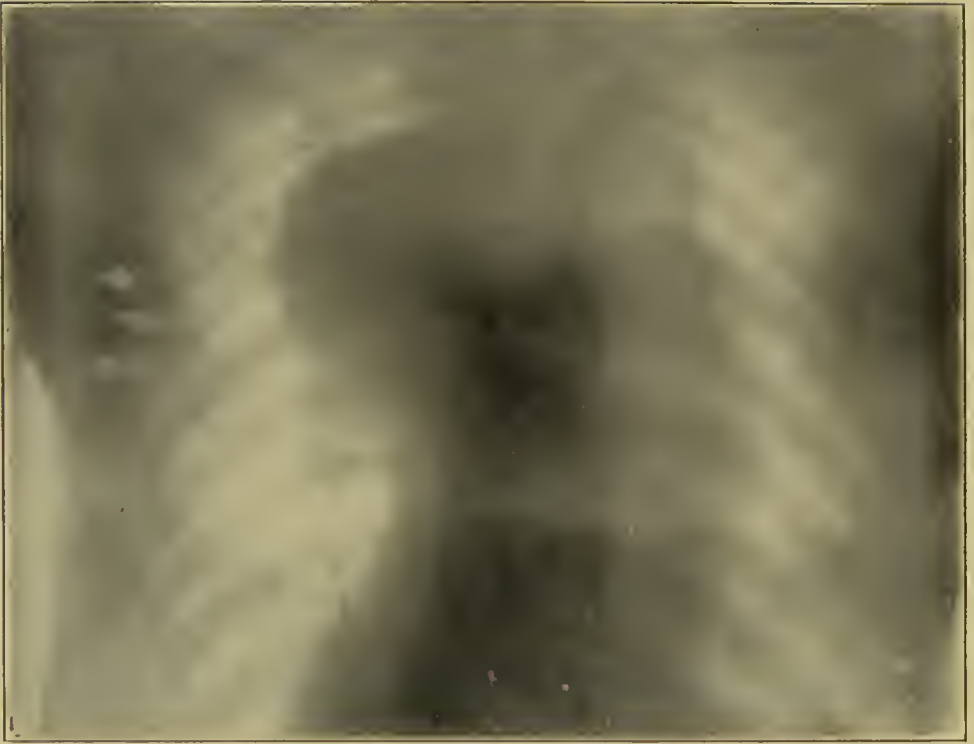


Fig. 3. *Skiagram from Case 3.*

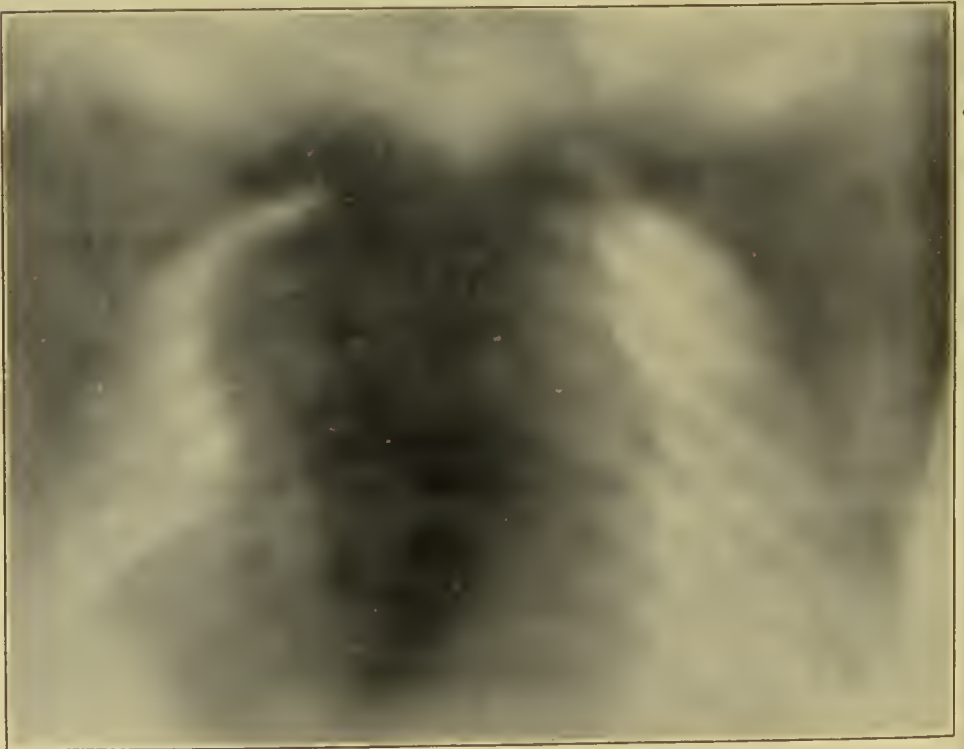


Fig. 4. *Skiagram from Case 4.*



There is no alteration of voice or of cough, and no stridor. Deglutition is unimpaired. No tracheal tugging can be felt. There is no alteration in the pupils and no vaso-motor change.

The skiagram (Fig. 2) confirms the result of observation by the screen, and the shadow above the cardiac limits shows a close correspondence with the area of dulness obtained by percussion.

In this case there is even less difficulty concluding that we have to deal with an aneurysm of the transverse portion of the arch of the aorta. The patient has greatly improved by complete rest, regulated diet, and potassium iodide, and is about to return home.

*Case 3.*—H. C., aged 52, hammerman, was recommended to Ward XXIX. by Dr. Henderson, Kirkcaldy, on September 14, 1904, complaining of pain in the left side of the chest and of weakness of the muscular system. Fifteen years ago certain symptoms of the kind had shown themselves after severe exertion, but five years ago the symptoms became for the first time definite.

On examination there is no swelling or pulsation beyond the præcordia, and no thrill can be felt. The cardiac boundaries are 2 inches to right, and  $4\frac{1}{2}$  inches to left of mid-sternum. Above the præcordia is an area of dulness occupying the first and second intercostal spaces, extending  $1\frac{3}{4}$  inches to right and  $2\frac{1}{4}$  inches to left of the middle line. Over this region there is no murmur—in fact, no murmur is present anywhere—but the second aortic sound is much accentuated. The skiagram (Fig. 3) shows a dark shadow corresponding to the appearance seen on the screen, as well as to the area of dulness on percussion, above the level of the heart. The radial pulses are equal and synchronous; there is no tracheal tugging, or stridor, or cough, or hoarseness, or change in pupils, or difficulty in swallowing. In this case, although with considerable absence of certain characteristic phenomena, there can be no doubt of the existence of an aneurysm of the transverse portion of the arch of the aorta. The patient has already greatly improved by the usual treatment by means of iodides, diet, and rest.

*Case 4.*—A. C., aged 40, shipmaster, was sent to Ward XXIX. on July 29, 1904, by my colleague Dr. Boyd, complaining of pain between the shoulders and loss of voice. These symptoms have been present for a few months.

No abnormality is seen in the form of the chest, but a slight pulsation above the level of the heart is visible. The impulse accompanying the second sound can also be felt in the aortic region. The apex beat is somewhat beyond the normal position, and the lateral boundaries of the heart are 2 and 5 inches respectively to right and left of mid-sternum. In the region of the manubrium there is an area of dulness which extends 2 inches to right and 4 inches to left of the middle line. The pulses in the radial arteries are neither equal nor quite simultaneous.

The screen shows a large pulsating shadow above the level of the heart, and the skiagram (Fig. 4) confirms this, and accords well with the results of percussion.

There is a soft aortic systolic murmur, followed by a loud booming second sound. There is no stridor in any part of the chest, but the voice is hoarse, sometimes almost absent, and the left vocal cord is absolutely paralysed. There is some tracheal tugging. Some trouble in swallowing has been experienced at times.

The diagnosis in this case presents no difficulty of any kind. The treatment has been conducted on our usual lines, but, as the patient is of a restless disposition, he has not allowed himself a favourable opportunity of improvement, and, in deference to his urgent desire, we are obliged to allow him to return to his home in the Hebrides.

*Case 5.*—D. F., aged 61, shepherd, was sent by Dr. Haggart, of Aberfeldy, to Ward XIX. on July 16, 1904, on account of pain in the front and back of the chest, with cough and hoarseness. The patient has some difficulty in fixing upon any definite period during which the symptoms have been present, since the onset has been very insidious. For about a year the symptoms have given him much trouble.

The patient has a harsh growling stridor, a hard brassy cough, and a hoarse monotonous voice. There is little or no dysphagia.

A distinct pulsation in the second and third right intercostal spaces, as well as in the episternal notch, arrests the eye at once on inspection. The pulsation is even more evident on palpation. There is dulness corresponding to this area of throbbing; it extends  $2\frac{1}{2}$  inches to the right and 2 inches to the

left of the mid-sternal line. The lateral borders of the heart are  $2\frac{1}{2}$  and  $5\frac{1}{2}$  inches to right and left of the mesial plane. The only auscultatory change is a much accentuated aortic second sound. The radial pulses are very unequal in volume, the left being very small, but they are synchronous. There is complete paralysis of the left vocal cord, which is in the cadaveric position. The pupils show no change. No tugging of the trachea is felt.

With the screen a somewhat indistinct shadow occupies the position of the supracardiac pulsation, and the skiagram (Fig. 5) gives some indication of this.

Here, again, we have a clear case of aneurysm of the transverse portion of the arch. The treatment has been carried out on similar lines to those employed in the last three cases.

Now in these five cases we have excellent examples of aneurysm of the transverse part of the aortic arch—the “aneurysm of symptoms” as it has well been called. It will be of interest to analyse the clinical phenomena exhibited by these five cases, with a view to determine the amount of diagnostic evidence in each case. The most graphic method of presenting the facts to you is by drawing up the table which is now before you. A cross indicates the presence and a blank the absence of the different symptoms.

—	1.	2.	3.	4.	5.
Tumour in chest - - - -					
Pulsation in chest - - - -	×	×	×	×	×
Dulness - - - -	×	×	×	×	×
Murmur - - - -				×	
Radial inequality - - - -				×	×
Venous stasis - - - -					
Thoracic duct stasis - - - -					
Lung displacement - - - -					
Pressure on trachea - - - -	×				
Tracheal tugging - - - -	×			×	
Pressure on œsophagus - - - -				×	×
Pressure on recurrent laryngeal - - - -	×			×	×
Pressure on cilio-spinal - - - -					
Sensory symptoms - - - -		×	×	×	×

In this table you will observe that none of the cases shows tumour, turgescence of veins, interference with the thoracic duct, displacement of lungs, or changes in the pupils. All of them show pulsation, only one has a murmur, two have changes in the radial pulse, two pressure on the œsophagus, three paralysis of the left recurrent laryngeal nerve, two tracheal tugging, and three distinct sensory changes. None of the cases presents all, or even the majority of, the usual symptoms, direct or indirect, of the classical aneurysm of the transverse part of the aortic arch.

A word as to the skiagrams, for which my warm thanks are due to my colleagues, Dr. Dawson Turner and Dr. Hope Fowler. In all the cases the results of examination by percussion and by the use of the fluorescent screen have perfectly accorded, but in one of them—Case No. 5—the skiagram has not revealed a distinct shadow equal in size to the area of dulness. It is not easy to explain this discrepancy, but, as the patient has a considerable amount of emphysema, it is possible that dispersal of the rays may account for it.

As a contrast to these cases, let me bring before you a patient who has no aneurysm, and who yet, when under my care some time ago, presented many of the phenomena usually caused by it.

*Case 6.*—R. B., aged 61, engineer, was sent to Ward XXIX. by Dr. Scott, Broxburn, on May 7, 1904, complaining of pain in the chest and breathlessness, along with giddiness. His previous health had been absolutely satisfactory, except for the sudden appearance of a large inguinal hernia two years before admission, which was the result of a severe fall.

A few months before admission he suffered from pleurisy, and in March he began to cough. Dyspnœa set in soon afterwards, and the voice became husky. These symptoms steadily increased, and on admission the patient could only whisper. There was never anasarca.

He suffered from occasional præcordial pain, and frequent attacks of palpitation. This latter symptom, as well as the dyspnœa, was worse on exertion. There was some diffuse pulsation in the region of the apex, and well-marked throbbing in the epigastrium and the neck. The cardiac impulse was feeble and irregular. The heart was large, extending  $2\frac{3}{4}$  inches



PLATE XXXIV.



Fig. 5. *Skiagram from Case 5.*

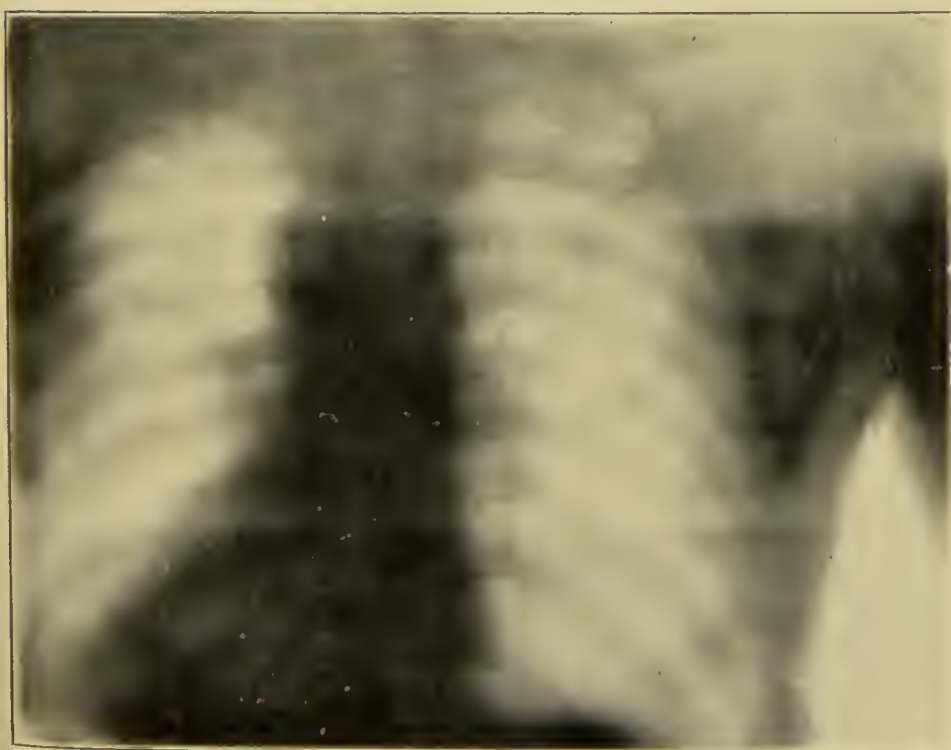


Fig. 6. *Skiagram from Case 6.*

PLATE XXXV.

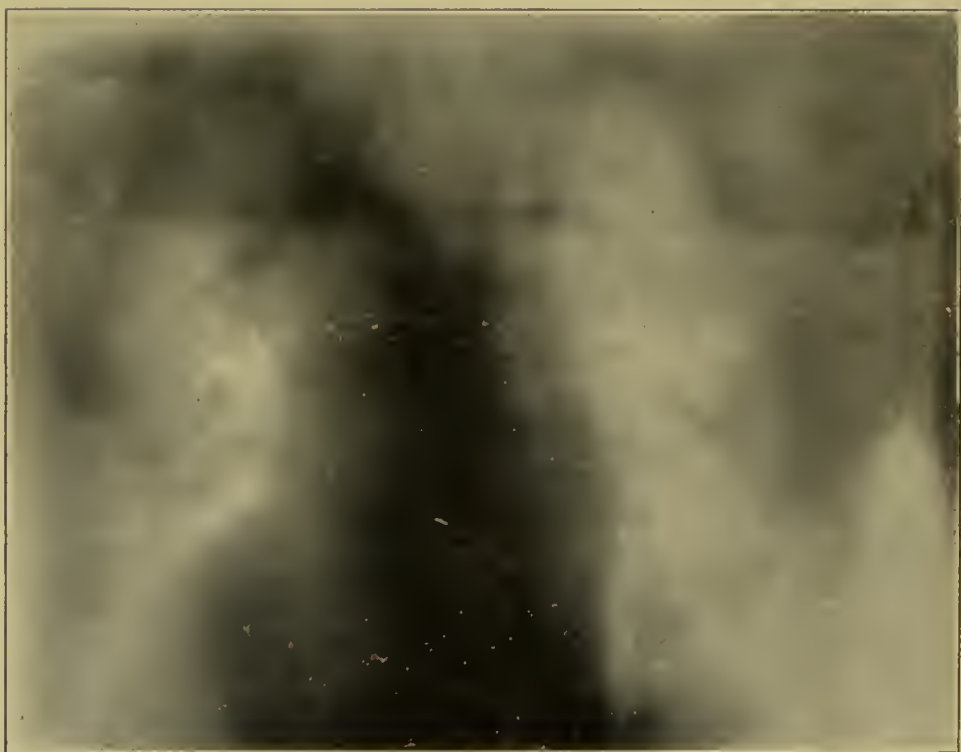


Fig. 7. *Skiagram from Case 7.*

to right and 5 inches to left of mid-sternum. There were soft-blowing systolic murmurs, of different tone, in the mitral and tricuspid areas, along with a harsher systolic murmur over the manubrium and in the carotid vessels. The second sound in the pulmonary area was very much accentuated. The arteries were thick and tortuous. The arterial pressure was rather high; the pulsation irregular and unequal; the rate varied from 80 to 90. The bases of the lungs had loud, coarse crepitations, while there were sonorous and sibilant rhonchi throughout the chest. Laryngoscopic examination revealed complete paralysis of the left vocal cord. There were no morbid appearances in connection with the urine, and no changes in the pupils.

The fluorescent screen showed no preternatural shadow, and the skiagram (Fig. 6) confirmed this.

On carefully reviewing the entire group of symptoms the diagnosis was made of chronic interstitial myocarditis with cardiac failure, from arterial changes. It seemed to me very probable that the paralysis of the left vocal cord might be caused by the large heart pressing the conus arteriosus and pulmonary artery upwards against the arch of the aorta, and thus implicating the recurrent laryngeal nerve. It must be confessed, however, that such a condition has never been under my notice before.

The treatment adopted was absolute rest, and the use of strophanthus, nux vomica, and aromatic spirit of ammonia for some days. Respiratory exercises were then commenced and gradually increased, and iodides were given to improve the arterial walls and heart muscle. Under these methods the patient rapidly improved. The dyspnœa disappeared, the voice returned, monotonous at first, but steadily increasing in compass. When he returned home he was able to sing an octave and a half, the heart extended only  $1\frac{3}{4}$  inches to right and  $4\frac{1}{2}$  inches to left of mid-sternum, and there were no adventitious sounds over the lungs.

To-day the patient has been good enough to come into Edinburgh to show himself to you. The condition of the pulse is satisfactory. The vessel is more healthy, and the pressure moderate, while the rhythm is regular. The boundaries of the heart remain as they were when he left the ward, and

no murmur, except the aortic, is audible. The lungs are clear, the voice is not husky, and, as you can hear for yourselves, the patient can sing nearly two octaves. The left vocal cord moves as freely as its fellow.

In this case it would have been easy to make a mistake and to give a diagnosis of aneurysm. From every point of view the patient is of much interest, and if my suggestion regarding the cause of the aphonia is correct, he may be regarded as a rare example.

Finally, let me bring before you a former patient, who has been so kind as to return for your inspection.

J. E., aged 66, engine-keeper, who served in the Royal Artillery for thirteen years, and went through the Indian Mutiny, was sent to Ward XXIX. by Dr. Scott, of Broxburn, on August 9, 1900, on account of pain in the chest and back, with a choking sensation and some giddiness. Two years before admission, when pulling on a rope, the pain suddenly begun, and has never left him. Shortly before Dr. Scott sent him into the ward he had a severe attack of giddiness and agonising pain in the chest. Similar attacks recurred when he was going about, but remained absent if he stayed in bed. During the two years before admission he lost weight considerably.

There was a distinct prominence above the præcordia on the left side, and fulness of the left side of the neck, there was dilatation and tortuosity of the veins over the left side of the chest. The projection in the infra-clavicular region pulsated freely. No thrill was palpable. The cardiac boundaries were 2 inches to right and  $4\frac{1}{2}$  to left of mid-sternum. At the level of the manubrium there was dulness corresponding to the pulsating area, extending 3 inches to left of mid-sternum. The second sound in the aortic area was very loud and booming, and over the pulsating region there was a soft systolic murmur. The pulse showed arterial sclerosis and high pressure. There was no difference between the right and left radial pulses. No difficulty in swallowing or speaking could be elicited. The condition of lungs was intact, and the urinary system had no abnormalities.

The screen showed a dark shadow corresponding to the area of extra-cardiac pulsation, and this was confirmed by the skiagram (Fig. 7). The diagnosis was aneurysm of the trans-



verse portion of the aorta, probably with pressure on the thoracic duct.

After a long course of iodide of potassium, the patient was treated by means of injections of gelatin in simple serum. He made excellent progress in every way, and returned to his home after some months of treatment. During the last four years he has been steadily at work, and his presence to-day is simply to give me an opportunity of demonstrating to you that, while the prognosis of aneurysm as a rule is far from hopeful, we met with some cases in which excellent results occur. If my conclusion that there was pressure on the thoracic duct is correct, the interference has passed away, for the patient is now restored to his normal weight. One of the best examples of recovery from aneurysm which ever came under my notice was the subject of a clinical lecture given about ten years ago,<sup>1</sup> which has been frequently quoted by subsequent writers. It is to be hoped that our present patient may be equally satisfactory.

<sup>1</sup> *International Clinics*, Philadelphia, 1896, Series VI., Vol. II., p. 52.







